H is the residue of a hydroxy carboxylic acid, a carbonic acid, or an amino acid, which is linked to K by an ester bond; and

K is the residue of an alcohol containing at least one carbon atom.

22. (Amended) The [monomer] material of claim 21 wherein

A is selected from the group consisting of acrylic, methacrylic crotonic, isocrotonic, tiglic, angelic, and cinnamic acids; maleic, fumaric, citraconic, mesaconic, itaconic, citric and isocitric acids, and monoesters and monoamides thereof, and mixtures thereof;

H is selected from the group consisting of glycolic acid, lactic acid, 3-hydroxy-propanoic acid, a hydroxybutyric acid, a hydroxypentanoic acid, hydroxy trimethylene carbonic acid, hydroxy ethylene carbonic acid, hydroxy propylene carbonic acid, hydrolyzed dioxanone [(i.e., 2-hydroxyethoxyacetic acid)], a hydroxyhexanoic acid, an alpha, beta or gamma amino acid of eight carbons or fewer, and mixtures thereof; and

K is an alcohol containing from 1 to about 10 carbon atoms and at least one hydroxyl group, or a mixture of such alcohols.

23. (Amended) The [monomer] material of claim 22 wherein A is selected from the group consisting of acrylic acid and methacrylic acid.

24. (Amended) The [monomer] material of claim 22 wherein H has one to about eight carbon atoms and is selected from the group consisting of glycolic acid, lactic acid, 3-hydroxy-propanoic acid, a hydroxybutyric acid, a hydroxypentanoic acid, and a hydroxyhexanoic acid.

applying a crosslinked polymeric hydrogel material to the tissue or implant, wherein the material has both hydrophilic and hydrophobic regions and is characterized as having the following properties:

a) absorbing water to less than about 300% of its initial weight, on exposure to water or bodily liquids;

b) having a solids content of at least about 20% after equilibration in water or bodily fluids;

c) having an elongation to failure of at least about 25% both as formed and after swelling to equilibrium; and

d) being biocompatible;

wherein the material is formed by the crosslinking of reactive monomers and macromers in the presence of tissue, and undergoes hydration with bodily liquids to form a water-containing material.

Please add the following new claims.

38. (New) A composition for forming a water-absorbing, high modulus polymeric material comprising at least one macromer and at least one monomer,

wherein the macromer comprises hydrophobic and hydrophilic regions and has a molecular weight of 500 to 200,000 Da,

wherein the monomer contains at least one vinyl group and has a molecular weight of less than 1,000 Da, and

wherein the monomer comprises at least 30% (wt/wt) of the composition.

39. (New) The composition of claim 38, wherein the composition is in the form of a fluid or paste.

40. (New) The composition of claim 38, further comprising water.

41. (New) The composition of claim 38, wherein the macromer is polyethyleneglycol-trimethylene carbonate-diacrylate.

42. (New) The composition of claim 38, wherein the monomer is selected from the group consisting of vinyl caprolactam, methyl acrylate, methyl methacrylate, styrene, N-vinyl pyrrolidone, and N-vinyl imidazole, diacetone acrylamide, vinyloxyethanol, 2-acrylamido-2-methylpropane, and methyl acryloyl lactate and mixtures and derivatives thereof.

43. (New) The composition of claim 38, wherein the macromer comprises up to 50% (wt/wt) of the formulation and the monomer comprises at least 45% (wt/wt) of the formulation.

44. (New) The composition of claim 43, further comprising less than 40% (wt/wt) water.

45. (New) The composition of claim 41, wherein the monomer is diacetone acrylamide.

46. (New) The composition of claim 38,

wherein upon copolymerization of the macromer and monomer, a polymeric material is formed, wherein the material comprises hydrophobic and hydrophilic regions and is characterized as having the following properties:

a) absorbing water to less than about 300% of its initial weight, on equilibration with water or bodily liquids;

b) having a solids content of at least about 20% after equilibration in water or bodily liquids;

c) having an elongation to failure of at least about 25% hydration to equilibrium; and

d) being sufficiently biocompatible to permit the treatment or repair of biological tissue, or used as an implant in a patient.

47. (New) The composition of claim 38, wherein the macromer has the formula AHK, wherein:

A is a residue of an ethylenically unsaturated acid that is linked to H by a bond selected from ester and amide;

H is the residue of a hydroxy carboxylic acid, a carbonic acid, or an amino acid, which is linked to K by an ester bond; and

K is the residue of an alcohol containing at least one carbon atom.

48. (New) The composition of claim 47 wherein

A is selected from the group consisting of acrylic, methacrylic crotonic, isocrotonic, tiglic, angelic, and cinnamic acids; maleic, fumaric, citraconic, mesaconic, itaconic, citric and isocitric acids, and monoesters and monoamides thereof, and mixtures thereof;

H is selected from the group consisting of glycolic acid, lactic acid, 3-hydroxy-propanoic acid, a hydroxybutyric acid, a hydroxypentanoic acid, hydroxy trimethylene carbonic acid, hydroxy ethylene carbonic acid, hydroxy propylene carbonic acid, hydrolyzed dioxanone, a hydroxyhexanoic acid, an alpha, beta or gamma amino acid of eight carbons or fewer, and mixtures thereof; and